

CLAIMS

1. A production device for producing a multicomponent film from a vaporizing material (4) of an alloy containing at least two sorts of metals or intermetallics compound by a melting-evaporation type ion plating method which melts and evaporates the material from a single crucible or hearth (3) with use of plasma (7) converged by an electric field or a magnetic field, the device having an electric power supply unit (6) for melting and evaporating the material and a plasma control unit (9) for controlling the electric field or magnetic field, characterized in that

said electric power supply unit (6) is a sequentially increased electric power supply unit (6) which supplies first electric power necessary to evaporate the material (4) and then supplies electric power increased stepwise from the first electric power at predetermined intervals repeatedly up to necessary maximum electric power to sequentially melt an unmelted portion of the material, and

said plasma control unit (9) performs plasma control for converging the plasma (7) into a first plasma region necessary to evaporate the material (4) and performs plasma control for continuously and sequentially moving and expanding the plasma from the first plasma region up to the maximum plasma region to sequentially melt the unmelted portion.

2. A method for producing a multicomponent film by using a vaporizing material (4) of an alloy containing at least two sorts of metals or intermetallics compound and by melting and evaporating the material from a single crucible or hearth (3) with use of plasma (7) converged by an electric field or a magnetic field, characterized by

supplying first electric power necessary for evaporating the material (4), and then supplying electric power increased stepwise from the first electric power at predetermined intervals repeatedly up to necessary maximum electric power to sequentially melt an unmelted portion of the material, and

converging the plasma (7) into a first plasma region necessary for evaporating the material (4), and then continuously and sequentially moving and expanding the plasma from the first plasma region up to a maximum plasma region to sequentially melt the unmelted portion.

3. A coated tool comprising a cutting tool base material such as a high-speed tool steel, a die steel, a cemented carbide and a cermet and a film of a nitride, a carbide, a boride, an oxide or a silicide containing a plurality of metal elements and formed on the base material by the method according to claim 2.